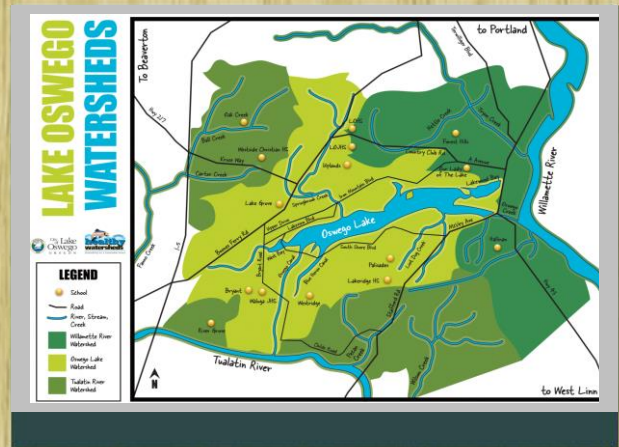# Oswego Lake Watershed Engineering Design Unit

Welcome to the first edition of the Oswego Lake Watershed Engineering Design Unit newsletter. In this collaborative publication we hope to give you some background information on the project and also keep you up to date with our accomplishments and progress.

Due to technological engineering difficulties please skip to pages 2 and 4. Thank you and enjoy your tour.

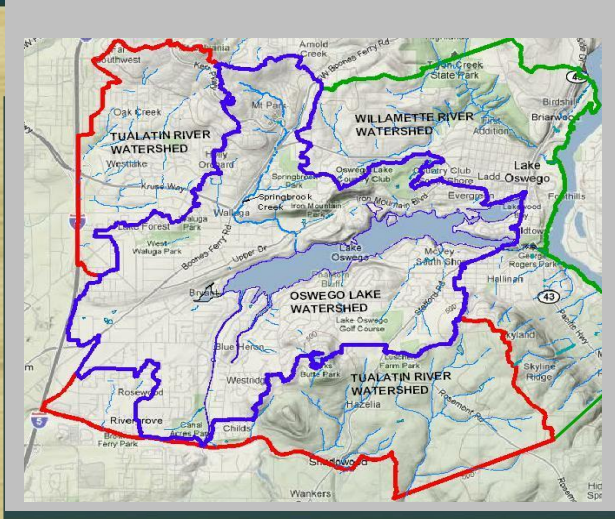*Map of Lake Oswego and surrounding watersheds including major tributaries.*

http://www.oswegowatershed.org/explore-the-watershed/

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Oswego Lake Watershed Engineering Design Unit

Map of Oswego Lake Watershed coverage area.

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History

This unit has been prepared for sixth grade Lake Oswego science classrooms, in partnership with the Oswego Lake Watershed Council, Friends of Tryon Creek, and the Portland State University Master of Science Teaching program.

Storyline

In this unit, students examined human impacts on watersheds, specifically those posed by impervious surfaces. After investigating the impervious surfaces on their school campus, students used the engineering design process to develop solutions to address the problem of runoff generated by their campus. In the process students compiled an engineering design work sample.

Aerial photo of Lake Oswego Junior High with plot grid overlay.

Oswego Lake Watershed Engineering Design Unit

Definitions

- A watershed is typically defined as the area of land where all precipitation drains to a common water body, such as a river or lake. A watershed includes upland areas, wetlands, streams and water bodies.

- Impervious surfaces such as rooftops, roads and parking lots generate runoff polluted with heavy metals, oil and grease from cars, pesticides, fertilizers, and bacteria.

- Stormwater solutions include: pervious pavers, green roofs, or disconnecting rainspouts and diverting the water into rain gardens, bioswales, or planter boxes.

Goals

The potential of making the Oswego Lake Watershed Project not just an academic exercise was floated by teachers and mentors alike. The possibility of having a school-wide contest for an onsite Stormwater Design Solution was enthusiastically discussed.

Potential Stormwater solution from The Oregon Rain Garden Handbook

Project Update

In June members of the PSU team and the Lake Oswego Middle School Science Teachers met to review the implementation of the curriculum. All four 6th grade teachers were able to complete most of the curriculum. Due to time constraints and the approaching end of the school year, none of them were able to complete the process through the Engineering Design Charrette. Reducing the length of the unit by integrating some of the introductory lessons into the Landforms and Weather Units was discussed.

Next Steps

Researchers from Portland State University's Center for Science Education will be conducting a study of the Watershed and Engineering Design Unit curriculum in order to assess how effectively the student work represents the learning goals of the curriculum in order to identify areas for improvement in the curriculum. A small sub-set of students may be asked to participate in a brief interview with a researcher. Participation is voluntary and dependent upon *specific* parental consent. Questions would involve content covered by the curriculum as well as students perceptions of the unit lessons and activities.